

Flight Scientist Report
Monday 03/29/2021 ACTIVATE RF57

Flight Type: Statistical Survey Flight

Flight Route: KLF I AT L I C Z I B U T A Z E Z U 36.67/-70.2 A Z E Z U S I E K L F I

Special Notes: Conducted an underflight of ASTER and also probed cold air outbreak clouds. Couldn't do 2 flights today due to timing of the ASTER overpass.

King Air

Pilot report (Sandeen):

Cooperative flight with HU-25; KLF I - AT L I C - Z I B U T - A Z E Z U - 30.67N/070.20W - A Z E Z U - S I E - K L F I (In flight, Runway 26 takeoff, right turn out on heading, and return route amended to include SBY-V1-HPW then direct KLF I). Continuous climb to final altitude FL280. Flight level winds ~100 kts from the WSW. Right turn to reverse course at endpoint. Maintained FL280 until approximately SBY on return. 4x dropsondes deployed.

Two aircraft generally within 5 nm, with excursions outside of 10 nm only occurring after main research portions of flight.

ZIBUT-AZEZU Leg aligned with Aster overpass at 1545Z.

Laser off briefly at 1755Z for interloper aircraft.

All objectives were achieved and no system discrepancies were noted - pending post-flight data analysis.

Pilots: Coldsnow/Sandeen QNCs: Shingler

Flight scientist report (Shingler): The UC12 flew a joint sortie today with the HU25 targeting an ASTER underpass. We flew out of AR9 and picked up the ASTER underpass heading NE to waypoint AZEZU. At AZEZU we turned right and flew SE to 30.76N/70.20W and returned along track to AZEZU and continued on this line to SIE and back to KLF I. Laser ops were briefly paused near the coast for underflying traffic. 4 sondes were dropped with one right on the ASTER line and the other three between the eastern most point and the coast. All instruments were operational.

Falcon

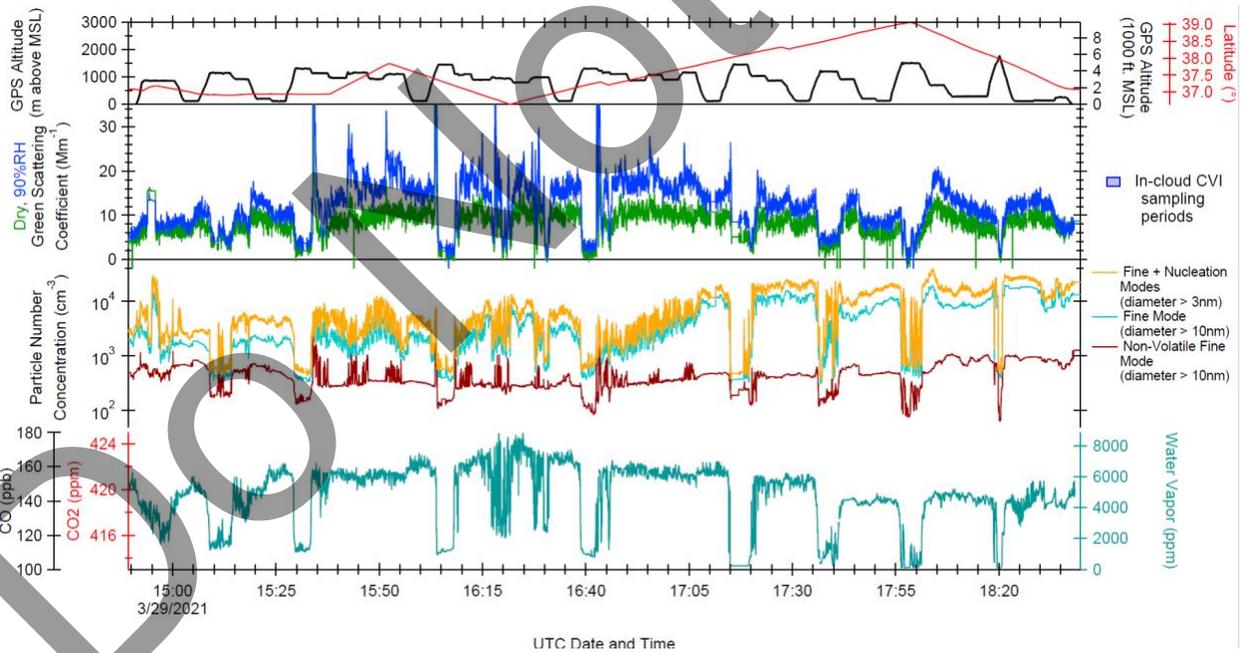
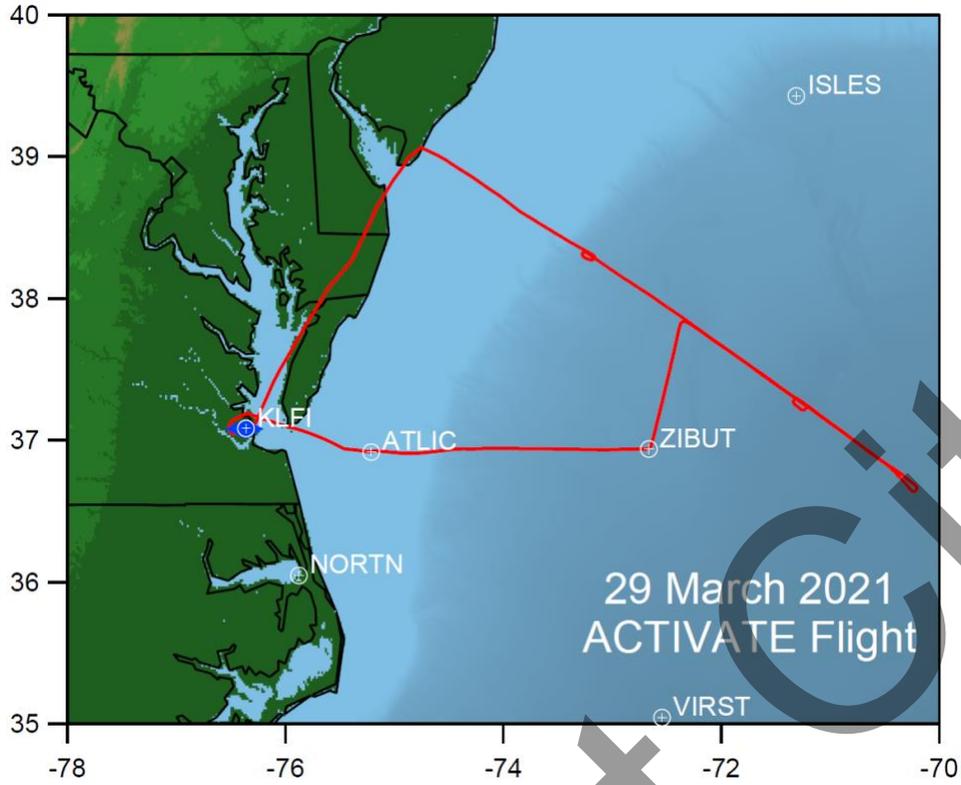
Pilot report ():

Flight scientist report (Crosbie): We got the BCB/ACB pairs on the ASTER leg. There was a bonus ACB leg just before ZIBUT as well.

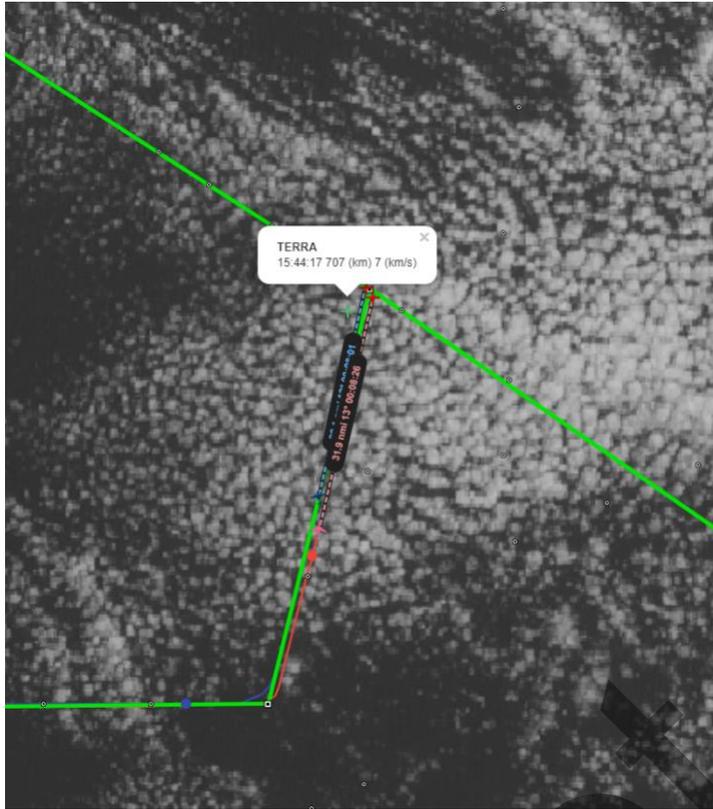
Once in the cloud, the conditions were fairly consistent and there was a well-defined inversion marking the top of the clouds. No evidence of aerosol NPF above cloud. The clouds were quite thin in depth, although in places the coverage of cloud was quite extensive. The aerosol conditions did not seem to change much through the cloudy section of the flight. The sea state was quite rough with white caps visible most of the flight.

Over land on the run home, we did a low altitude survey with a single porpoise profile to ~6000 ft near the center.

Cloud water was almost impossible. We collected 2 very small samples but it took quite a bit of time to collect so I would not have high confidence that these will be much use. LWC was as high as 0.2 g/m³ in a few places, but for most of the time in cloud it was < 0.1 g/m³.

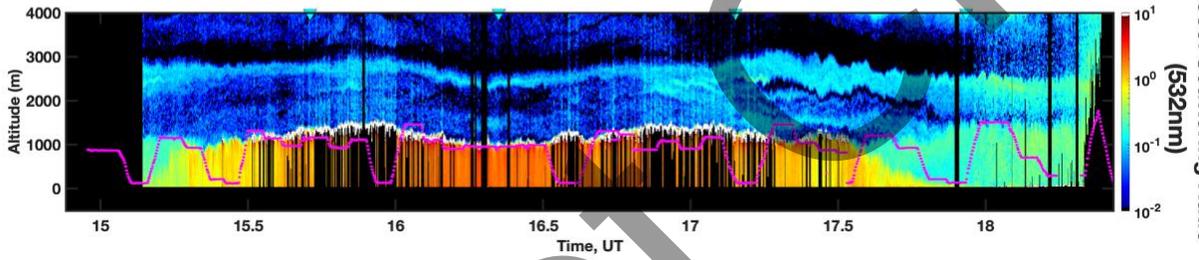
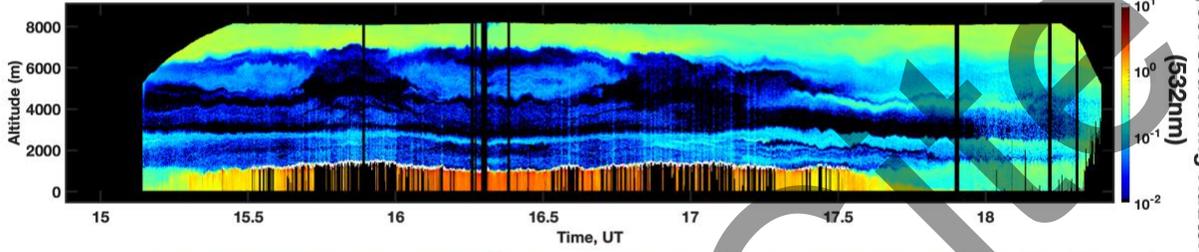
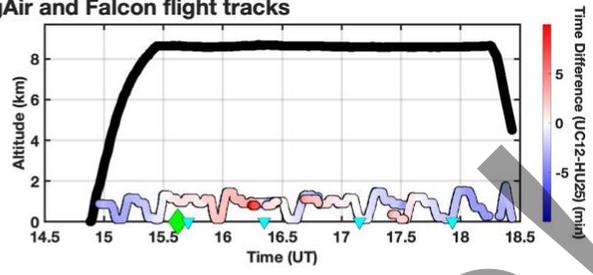
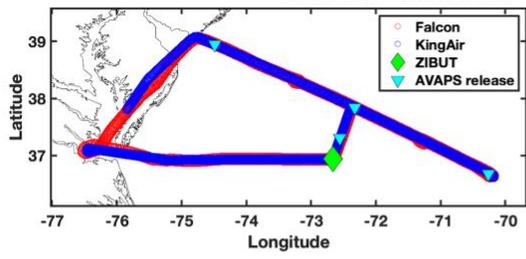


ASTER leg:



Do Not Cite!

20210329 - ACTIVATE - KingAir and Falcon flight tracks



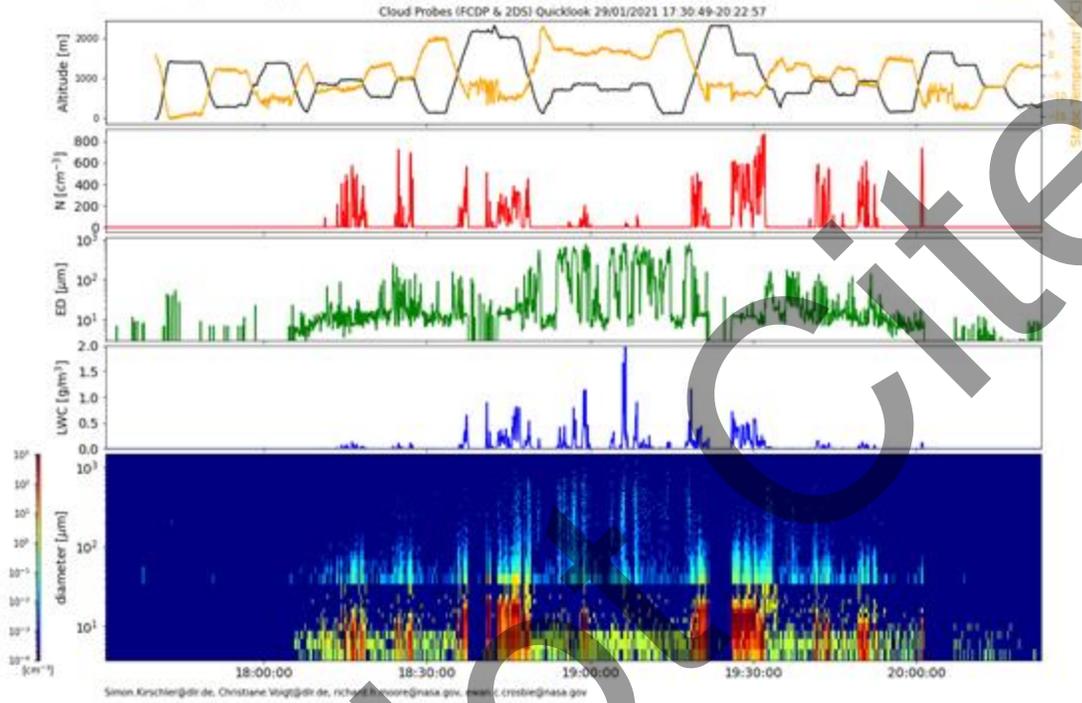
Aerosol Scattering Ratio (532nm)

DO NOT

Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

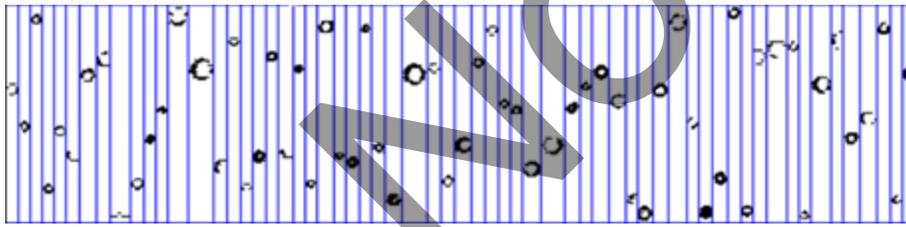
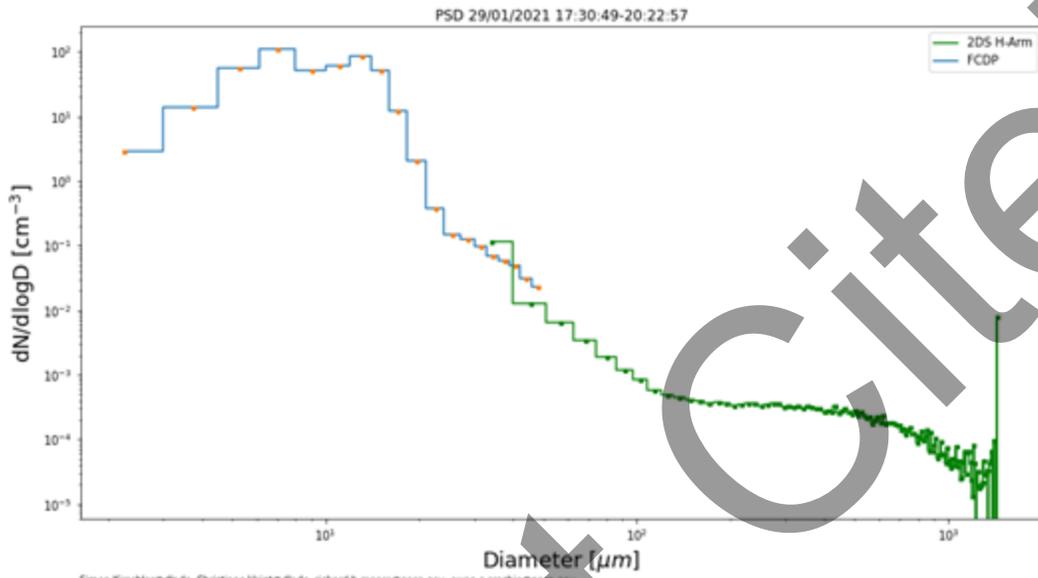
preliminary data, only for quicklook use

Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



PSD ACTIVATE

preliminary data, only for quicklook use
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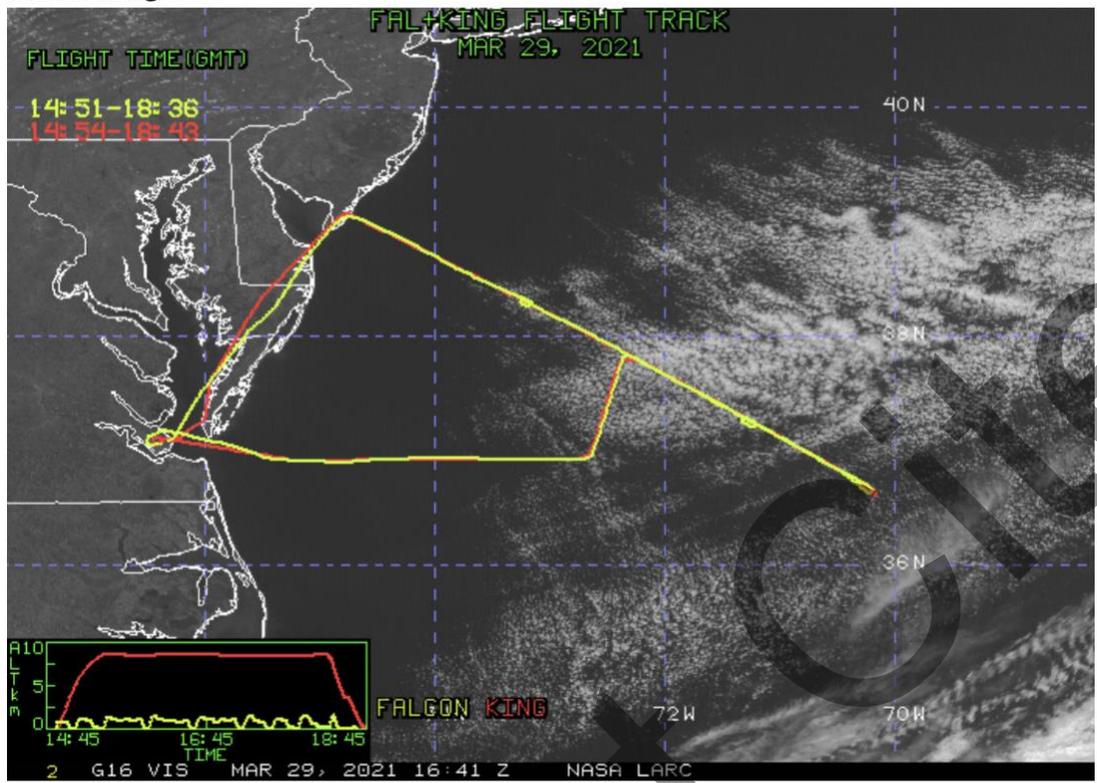


Only pure liquid clouds

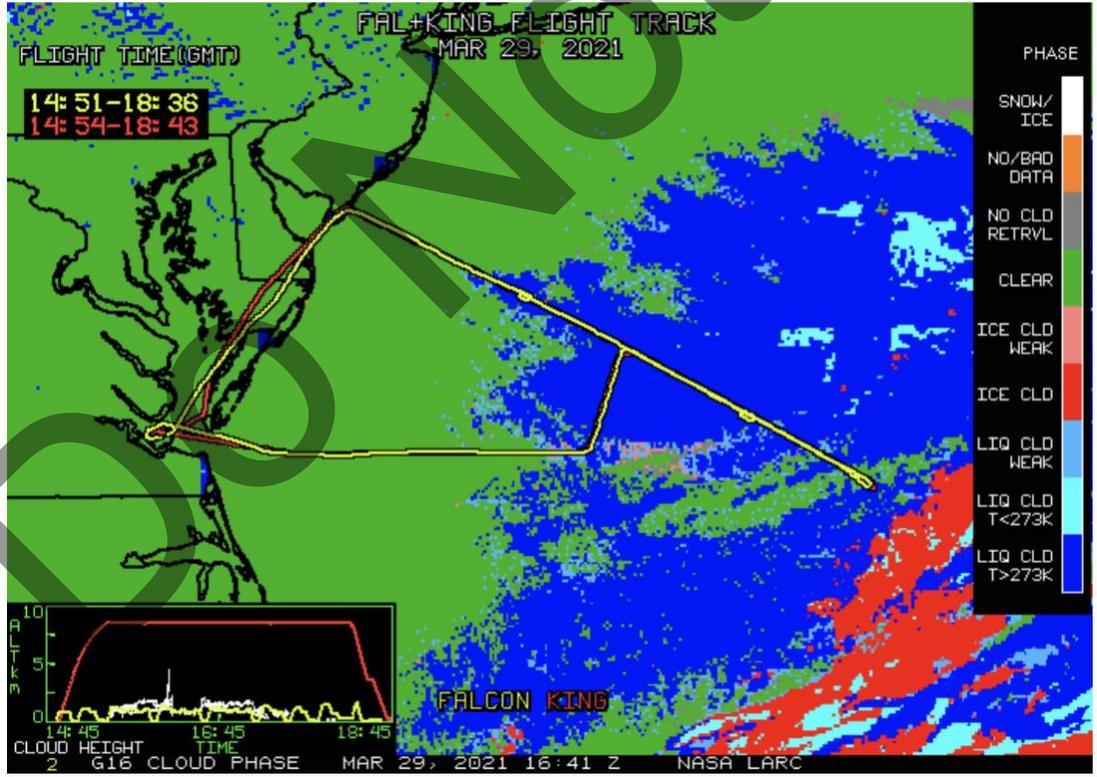
NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 57, 16:41 UTC Mar 29, 2021

Do Not Cite!

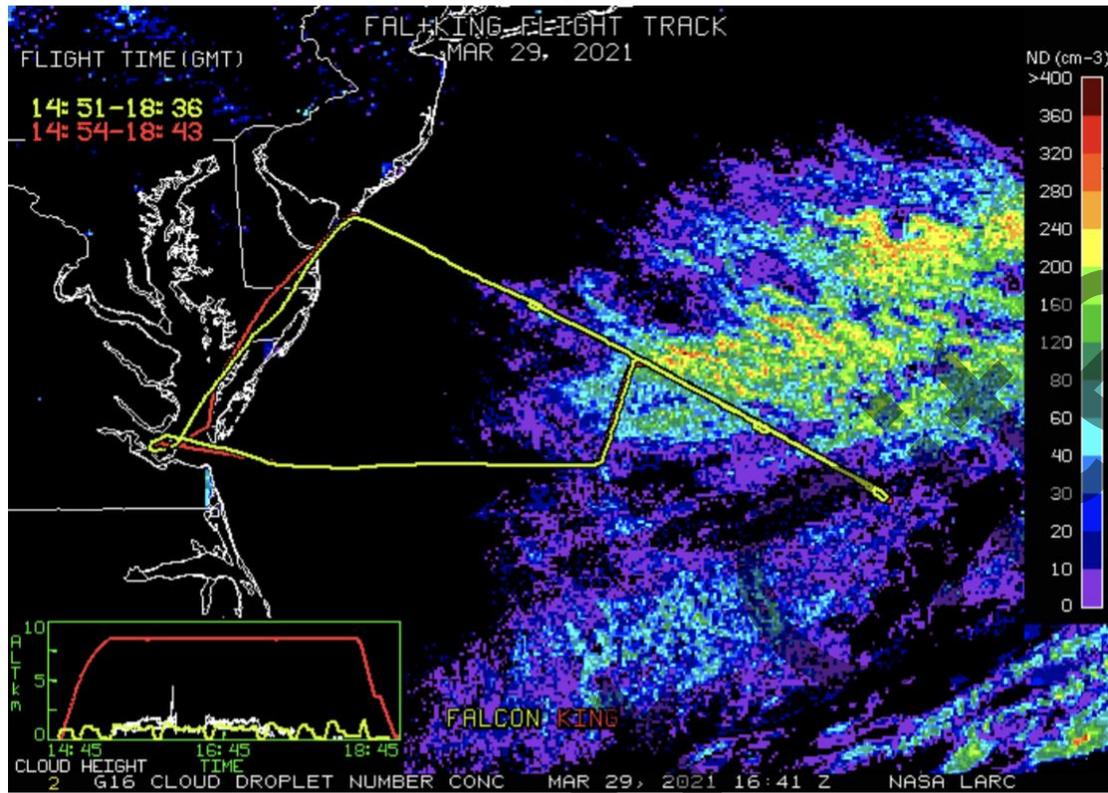
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

